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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,055

01/03/2005

Hideo Onuki

AOKI.P-103

9155

28752 7590 05/12/2008
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EXAMINER

MCNALLY, DANIEL

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

05/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/500,055	Applicant(s) ONUKE, HIDEO	
	Examiner DANIEL MCNALLY	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-10 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 5-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konuki [JP10282339] (of record, previously cited) in view of Noda et al. [US8642897] (of record, previously cited).

Konuki '339 discloses a method of bonding parallel plates. Note a machine translation of Konuki '339 is used and cited. The machine translation is of record and cited in the previous election/restriction requirement. Konuki '339 discloses a method comprising providing a plurality of quartz glass plates, which are transparent to ultraviolet light, applying alkoxide to the surfaces between the plates, irradiating ultraviolet light from an excimer lamp to solidify the alkoxide and bond the plates together (paragraphs 0022-0023). The excimer lamp produces ultraviolet light at wavelengths less than 200nm, and the ultraviolet light is also irradiated in a nitrogen gas atmosphere (paragraph 0022). While Konuki '339 discloses an embodiment where mechanical pressure is applied to the plates (paragraph 0015), Konuki '339 is silent as to applying pressure and alkoxide with ultraviolet light to bond the plates together.

Noda discloses a method for bonding articles. The method comprises providing a first and second substrate, providing a bonding layer between the substrates, pressing the substrates together and drying the bonding agent to bond the substrates together (column 1, lines 43-62; column 3, lines 15-23). The bonding layer comprises an alkoxide

Art Unit: 1791

(column 3, lines 44-57). At least one of the substrates can be made of quartz (column 4, lines 6-14).

It would have been obvious for one of ordinary skill in the art at the time of invention to modify the method of Konuki '339 by pressing the plates together as taught by Noda in order to narrow the gap of between the plates and hold the plates together in contact.

With regard to claim 5, Konuki '339 discloses using quartz glass plates (paragraph 0022).

With regard to claim 6, Konuki '339 discloses using TMOS (paragraph 0022).

With regard to claim 7, Noda discloses using a bonding agent comprising metal alkoxide (column 3, line 44 – column 4, line 5).

With regard to claim 8, Noda discloses pressing the bonding surfaces against each other in the vertical direction (column 3, lines 15-23).

With regard to claim 10, Noda discloses quartz and glass can be alternatively used as the substrate materials.

3. Claims 1 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura [US2003/0116273] (newly cited) in view of Noda [US6824897] and Hirayama et al. [US6655433] (newly cited).

Nakamura discloses a method of bonding optical parts. The method comprises providing optical parts, wherein the optical parts can be glass, quartz glass or oxide glass, the glass is inherently transparent to ultraviolet light because it is the same material used in the claims, applying a primer to one of the parts to be bonded, wherein

Art Unit: 1791

the primer comprises an alkoxide, curing the primer by heating, applying an adhesive composition comprising an alkoxide, contacting the parts to be bonded and curing the adhesive using ultraviolet radiation to form a bond (paragraphs 0051-0070). While Nakamura discloses the parts are pressed together, it is unclear if Nakamura is pressing while using ultraviolet energy to cure the adhesive. Furthermore, Nakamura is silent as to using a nitrogen or rare earth atmosphere during the ultraviolet irradiation step. With regard to the wavelength of the ultraviolet light, one of ordinary skill in the art would have readily appreciated selecting a wavelength that is most efficiently absorbed by the adhesive, and it is inherent the wavelength of the ultraviolet light is the same as the claimed wavelength because the same materials are being irradiated.

Noda discloses a method for bonding articles. The method comprises providing a first and second substrate, providing a bonding layer between the substrates, pressing the substrates together and drying the bonding agent to bond the substrates together (column 1, lines 43-62; column 3, lines 15-23).

Hirayama discloses a method of curing an ultraviolet curable resin on an optical part. Hirayama discloses using an apparatus comprising a ultraviolet ray applying member, a chamber, and a gas introducing pipe for introducing inert gas such as nitrogen gas into the chamber between the ultraviolet ray applying member and the part to be irradiated (column 3, lines 28-35). Nitrogen gas is used to fill the chamber where the ultraviolet light is irradiated to cure the resin, so that the oxygen is removed from between the ultraviolet source and the part so that the ultraviolet hardening of the resin is improved (column 1, lines 51-67; column 7, lines 54-60).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Nakamura by pressing the parts to be bonded together as taught by Noda in order to reduce the thickness of the adhesive layer and to hold the parts in contact, and to modify Nakamura by performing the ultraviolet radiation while the irradiate parts are located inside a nitrogen gas atmosphere as taught by Hirayama in order to improve the ultraviolet hardening.

With regard to claim 5, Nakamura and Noda disclose the materials can be quartz glass.

With regard to claim 6, Nakamura discloses the adhesive comprises silicon alkoxide (paragraph 0063).

With regard to claim 7, Nakamura discloses the adhesive and primer comprise a metal alkoxide (paragraphs 0054, 0063).

With regard to claim 8, Noda discloses pressing the bonding surfaces against each other in the vertical direction (column 3, lines 15-23).

With regard to claim 9, Nakamura and Noda do not require applying ultraviolet radiation before pressing the parts together.

With regard to claim 10, Nakamura discloses the materials can be common glass.

Response to Arguments

4. Applicant's arguments filed 1/31/2008 have been fully considered but they are not persuasive. Applicant argues Konuki '339 requires an ultraviolet irradiation step of the surface of the quartz glass. This argument is not commensurate with the scope of

Art Unit: 1791

claims 1 and 5-8 and 10. The arguments with regard to claim 9 are addressed below. Applicant argues Noda does not have any concept of irradiation of ultraviolet rays to bond quartz plates. Noda is merely relied upon to show that it is well known to press materials together when being bonded by hardening the adhesive. The teachings of Konuki '399 are relied upon to show that the hardening of the adhesive can take place by ultraviolet irradiation. Applicant also argues Konuki '399 teaches using a nitrogen atmosphere during a first ultraviolet irradiation step but does not disclose using the nitrogen atmosphere during the second ultraviolet irradiation step. Konuki '399 clearly recites using a nitrogen atmosphere for the first irradiation step, there is no suggestion of removing the material from the nitrogen atmosphere or changing the atmosphere before the subsequent processing steps including a second ultraviolet irradiation step are preformed. One of ordinary skill in the art would have readily appreciated that the benefit achieved by using a nitrogen atmosphere during the first irradiation step would also be received by using a nitrogen atmosphere during the second irradiation step. Furthermore one of ordinary skill in the art would have been inclined to leave the materials in the nitrogen atmosphere after the first irradiation step in order to reduce the processing time that would have been required to change the atmosphere after the first irradiation step.

5. Applicant's arguments with respect to claim 9 have been considered but are moot in view of the new ground(s) of rejection. Applicant argued the previously applied art, Konuki, required a first ultraviolet irradiation step. Newly cited Nakamura performs

Art Unit: 1791

bonding without requiring a first ultraviolet radiation step before pressing the parts into contact.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MCNALLY whose telephone number is (571)272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone

Art Unit: 1791

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel McNally/
Examiner, Art Unit 1791

/Jeff Aftergut/
Primary Examiner, Art Unit 1791

/DPM/
May 7, 2008